

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S409	334	726/22.ccls.	USPAT	OR	ON	2007/06/26 11:49
S410	242	726/23.ccls.	USPAT	OR	ON	2007/06/26 11:50
S411	211	726/24.ccls.	USPAT	OR	ON	2007/06/26 11:50
S412	178	713/188.ccls.	USPAT	OR	ON	2007/06/26 11:51
S413	118	(malware or virus or spyware or polymorphic or trojan or adware) near4 (pars\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/26 11:55
S414	31	(malware or virus or spyware or polymorphic or trojan or adware) and payload adj3 module	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/26 11:56
S415	2230	(malware or virus or spyware or polymorphic or trojan or adware) same (analyz\$4 or scan\$4) same (prohibit\$4 or prevent\$4 or protect\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/26 11:57
S416	304	(malware or virus or spyware or polymorphic or trojan or adware) same (analyz\$4 or scan\$4) same (prohibit\$4 or prevent\$4 or protect\$4) and pars\$4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/26 11:58
S417	21	(infect\$4 adj4 module) and (detect\$4 adj3 module)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/26 12:02

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S41 8	27	((("20030156894") or ("20030055994") or ("20030055962") or ("7010807") or ("6892241") or ("5548725") or ("20060212572") or ("20040139196") or ("20040139179") or ("20030145228") or ("6269400") or ("6711686") or ("5920698") or ("7080407") or ("5918008") or ("7117533") or ("6910134") or ("5832208") or ("5485575") or ("20040148281") or ("20020107953") or ("20030191963") or ("6338151") or ("20020133586") or ("6480471") or ("20040042418") or ("5889943") or ("20030145228"))).PN.	US-PGPUB; USPAT	OR	OFF	2007/06/26 12:12
S41 9	0	(pars\$4 and correlat\$4 and identify\$4 and infect\$4 and (virus or malware or spyware or adware or polymorphic) and payload and target and inoculat\$4).CLM.	US-PGPUB; USPAT	OR	ON	2007/06/26 14:02

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The war between computer **virus** writers and **virus** scanners is going on for years. ... viruses according to **payload** and describes eight **payload** types. ...
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The main malware differentiator is visibility: whereas a **virus** wants to be seen, Trojans and Spyware want to stay hidden in order to deliver their **payload**. ...
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1 [Student papers: An analysis of how antivirus methodologies are utilized in protecting computers from malicious code](#)



Daniel J. Sanok

September 2005

Proceedings of the 2nd annual conference on Information security curriculum development InfoSecCD '05

Publisher: ACM Press

Full text available: pdf(68.88 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Antivirus software utilizes several methodologies in scanning, detecting, and protecting computers and systems from viruses. As understanding increases about the vectors malicious code uses to attack and how antivirus software protects computer systems from the viruses, people will be able to more effectively help in creating an environment that is secure and virus free. This paper examines the techniques of signature detection, heuristics, and general decryption that antivirus software uses to ...

Keywords: antivirus, encryption, scanning, security

2 [Computer security and encryption II: Scanning workstation memory for malicious codes using dedicated coprocessors](#)



Sirish A. Kondi, Yoginder S. Dandass

March 2006

Proceedings of the 44th annual Southeast regional conference ACM-SE 44

Publisher: ACM Press

Full text available: pdf(176.91 KB)

Additional Information: [full citation](#), [abstract](#), [references](#)

This paper describes the implementation of a coprocessor platform for scanning workstation memory in order to detect signatures of malicious codes. The coprocessor is especially beneficial in clusters of workstations used for high performance computing where the overhead imposed by software-based intrusion detection codes is unacceptable. The coprocessor connects to the host via the PCI bus and accesses the host's memory using bus mastering DMA. The coprocessor interprets the host's virtual memory ...

Keywords: FPGA, coprocessor, intrusion detection, signature matching

3 [Computer virus-antivirus coevolution](#)



Carey Nachenberg

January 1997 **Communications of the ACM**, Volume 40 Issue 1

Publisher: ACM Press

Full text available: pdf(317.53 KB)

Additional Information: [full citation](#), [citations](#), [index terms](#), [review](#)

4 [Security & privacy: SmartSiren: virus detection and alert for smartphones](#)



Jerry Cheng, Starsky H.Y. Wong, Hao Yang, Songwu Lu

June 2007

Proceedings of the 5th international conference on Mobile systems,

applications and services MobiSys '07

Publisher: ACM Press

Full text available:  pdf(534.00 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Smartphones have recently become increasingly popular because they provide "all-in-one" convenience by integrating traditional mobile phones with handheld computing devices. However, the flexibility of running third-party softwares also leaves the smartphones open to malicious viruses. In fact, hundreds of smartphone viruses have emerged in the past two years, which can quickly spread through various means such as SMS/MMS, Bluetooth and traditional IP-based applications. Our own implementatio ...

Keywords: alert, privacy, security, smartphone, virus detection

5 Architectures for cryptography and security applications: A pattern matching coprocessor for network security




Young H. Cho, William H. Mangione-Smith

June 2005

Proceedings of the 42nd annual conference on Design automation DAC '05

Publisher: ACM Press

Full text available:  pdf(1.23 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

It has been estimated that computer network worms and virus caused the loss of over \$55B in 2003. Network security system use techniques such as deep packet inspection to detect the harmful packets. While software intrusion detection system running on general purpose processors can be updated in response to new attacks. They lack the processing power to monitor gigabit networks. We present a high performance pattern matching co-processor architecture that can be used to monitor and identify a la ...

Keywords: intrusion, network security, pattern matching, pattern search, snort

6 SPIKE: engineering malware analysis tools using unobtrusive binary-instrumentation

Amit Vasudevan, Ramesh Yerraballi

January 2006

Proceedings of the 29th Australasian Computer Science Conference - Volume 48 ACSC '06

Publisher: Australian Computer Society, Inc.

Full text available:  pdf(832.66 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Malware -- a generic term that encompasses viruses, trojans, spywares and other intrusive code -- is widespread today. Malware analysis is a multi-step process providing insight into malware structure and functionality, facilitating the development of an antidote. Behavior monitoring, an important step in the analysis process, is used to observe malware interaction with respect to the system and is achieved by employing dynamic coarse-grained binary-instrumentation on the target system. However, ...

Keywords: instrumentation, malware, security

7 Shield: vulnerability-driven network filters for preventing known vulnerability exploits



Helen J. Wang, Chuanxiong Guo, Daniel R. Simon, Alf Zugenmaier

August 2004

ACM SIGCOMM Computer Communication Review , Proceedings of the 2004 conference on Applications, technologies, architectures, and protocols for computer communications SIGCOMM '04, Volume 34 Issue 4

Publisher: ACM Press

Full text available:  pdf(242.89 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Software patching has not been effective as a first-line defense against large-scale worm attacks, even when patches have long been available for their corresponding vulnerabilities. Generally, people have been reluctant to patch their systems immediately, because patches are perceived to be unreliable and disruptive to apply. To address this problem, we propose a first-line worm defense in the network stack, using *shields* -- vulnerability-specific, exploit-generic network filters install ...

Keywords: generic protocol analyzer, network filter, patching, vulnerability signature, worm defense

8 Session 4: WORM vs. WORM: preliminary study of an active counter-attack

**mechanism**

Frank Castaneda, Emre Can Sezer, Jun Xu

October 2004 **Proceedings of the 2004 ACM workshop on Rapid malware WORM '04**

Publisher: ACM Press

Full text available: [pdf\(289.95 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Self-propagating computer worms have been terrorizing the Internet for the last several years. With the increasing density, inter-connectivity and bandwidth of the Internet combined with security measures that inadequately scale, worms will continue to plague the Internet community. Existing anti-virus and intrusion detection systems are clearly inadequate to defend against many recent fast-spreading worms. In this paper we explore an active counter-attack method - anti-worms. We propose a me ...

Keywords: anti-worm, good worm, worm

9

New products

Linux Journal Staff

August 2003 **Linux Journal**, Volume 2003 Issue 112

Publisher: Specialized Systems Consultants, Inc.

Full text available: [html\(6.84 KB\)](#)Additional Information: [full citation](#)

10

Scalability, fidelity, and containment in the potemkin virtual honeyfarm

Michael Vrable, Justin Ma, Jay Chen, David Moore, Erik Vandekieft, Alex C. Snoeren, Geoffrey M. Voelker, Stefan Savage

October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5

Publisher: ACM Press

Full text available: [pdf\(508.39 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The rapid evolution of large-scale worms, viruses and bot-nets have made Internet malware a pressing concern. Such infections are at the root of modern scourges including DDoS extortion, on-line identity theft, SPAM, phishing, and piracy. However, the most widely used tools for gathering intelligence on new malware -- network honeypots -- have forced investigators to choose between monitoring activity at a large scale or capturing behavior with high fidelity. In this paper, we describe an approach ...

Keywords: copy-on-write, honeyfarm, honeypot, malware, virtual machine monitor

11

The VuSystem: a programming system for visual processing of digital video

C. Lindblad, D. Wetherall, D. Tennenhouse

October 1994 **Proceedings of the second ACM international conference on Multimedia MULTIMEDIA '94**

Publisher: ACM Press

Full text available: [pdf\(808.12 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In computer-participative multimedia applications, the computer not only manipulates media, but also digests it and performs independent actions based on media content. We present a design approach that applies the programming techniques of visualization systems to the development of computer-participative multimedia applications. We describe an implementation based on this approach, and report performance measurements that demonstrate it is practical. We conclude by describing three applic ...

12

End-to-end security: Packet pre-filtering for network intrusion detection

Ioannis Sourdis, Vasilis Dimopoulos, Dionisios Pnevmatikatos, Stamatias Vassiliadis

December 2006 **Proceedings of the 2006 ACM/IEEE symposium on Architecture for networking and communications systems ANCS '06**

Publisher: ACM Press

Full text available: [pdf\(632.42 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

As Intrusion Detection Systems (IDS) utilize more complex syntax to efficiently describe complex attacks, their processing requirements increase rapidly. Hardware and, even more, software platforms face difficulties in keeping up with the computationally intensive IDS tasks, and face overheads that can substantially diminish performance. In this paper

we introduce a packet pre-filtering approach as a means to resolve, or at least alleviate, the increasing needs of current and future intrusion dete ...

Keywords: intrusion detection, packet inspection, packet pre-filtering

13 Generating realistic workloads for network intrusion detection systems



Spyros Antonatos, Kostas G. Anagnostakis, Evangelos P. Markatos

January 2004 **ACM SIGSOFT Software Engineering Notes, Proceedings of the 4th international workshop on Software and performance WOSP '04**, Volume 29 Issue 1

Publisher: ACM Press

Full text available: pdf(1.78 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

While the use of network intrusion detection systems (nIDS) is becoming pervasive, evaluating nIDS performance has been found to be challenging. The goal of this study is to determine how to generate realistic workloads for nIDS performance evaluation. We develop a workload model that appears to provide reasonably accurate estimates compared to real workloads. The model attempts to emulate a traffic mix of different applications, reflecting characteristics of each application and the way these i ...

Keywords: intrusion detection, security, workload characterization and generation

14 Simulating wireless networks: The design and implementation of WiMAX module for ns-2 simulator



Jenhui Chen, Chih-Chieh Wang, Frank Chee-Da Tsai, Chiang-Wei Chang, Syao-Syuan Liu, Jhenjhong Guo, Wei-Jen Lien, Jui-Hsiang Sum, Chih-Hsin Hung

October 2006 **Proceeding from the 2006 workshop on ns-2: the IP network simulator WNS2 '06**

Publisher: ACM Press

Full text available: pdf(418.13 KB)

Additional Information: [full citation](#), [abstract](#), [references](#)

The network simulator 2 (ns-2) is a popular and powerful simulation tool for the simulation of packet-switched networks, which provides substantial support for simulation of TCP, routing, and MAC protocols over wired and wireless networks, such as wireless LANs, mobile ad hoc networks (MANETs), and satellite communications, etc, and is widely used in both academia and industry. Although many protocol modules have been implemented in the ns-2, the IEEE 802.16 broadband wireless access networks (B ...

Keywords: MAC, WiMAX, broadband, module, network, simulator

15 Focus on the ESET NOD32 antivirus system

Gilbert Held

September 2006 **International Journal of Network Management**, Volume 16 Issue 5

Publisher: John Wiley & Sons, Inc.

Full text available: pdf(628.89 KB)

Additional Information: [full citation](#), [abstract](#), [index terms](#)

One of the software programs we take for granted is antivirus software. Perhaps part of the reason for not being excited about protecting our computers resides in the fact that most PCs marketed over the past few years are bundled with an antivirus solution. When you initialize the computer you also start your virus protection program, which will often provide you with only a short period of protection before pop-up messages appear reminding you to renew your antivirus program license to ensure ...

16 Steganography and steganalysis: Digital invisible ink and its applications in steganography



Chun-Hsiang Huang, Shang-Chih Chuang, Ja-Ling Wu

September 2006 **Proceeding of the 8th workshop on Multimedia and security MM&Sec '06**

Publisher: ACM Press

Full text available: pdf(1.06 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A novel information-hiding methodology denoted as digital invisible ink is introduced. The proposed approach is inspired by the invisible ink in the real world and can be regarded as an extension of the informed-embedding methodology. Messages hidden in digital contents using digital invisible ink cannot be correctly or clearly revealed unless certain

pre-negotiated manipulations have been applied to the marked work. To facilitate such behavior, models and implementations based on both spread-sp ...

Keywords: digital invisible ink, plausibly deniability, quantization-based watermarking, spread-spectrum watermarking, steganography

17 The space shuttle primary computer system



Alfred Spector, David Gifford

September 1984 **Communications of the ACM**, Volume 27 Issue 9

Publisher: ACM Press

Full text available: pdf(5.34 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: PASS, avionics system, space shuttle

18 Papers: Context-agile encryption for high speed communication networks



Lyndon G. Pierson, Edward L. Witzke, Mark O. Bean, Gerry J. Trombley

January 1999 **ACM SIGCOMM Computer Communication Review**, Volume 29 Issue 1

Publisher: ACM Press

Full text available: pdf(1.43 MB)

Additional Information: [full citation](#), [abstract](#), [references](#)

Different applications have different security requirements for data privacy, data integrity, and authentication. Encryption is one technique that addresses these requirements. Encryption hardware, designed for use in high-speed communications networks, can satisfy a wide variety of security requirements if the hardware implementation is key-agile, key length-agile, mode-agile, and algorithm-agile. Hence, context-agile encryption provides enhanced solutions to the secrecy, interoperability, and ...

19 Tools: Automated tools to implement and test Internet systems in reconfigurable hardware



John W. Lockwood, Chris Neely, Chris Zuver, Dave Lim

July 2003 **ACM SIGCOMM Computer Communication Review**, Volume 33 Issue 3

Publisher: ACM Press

Full text available: pdf(1.01 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Tools have been developed to automatically integrate and test networking systems in reconfigurable hardware. These tools dynamically generate circuits for Field Programmable Gate Arrays (FPGAs). A library of hardware-accelerated modules has been developed that processes Internet Protocol (IP) packets, performs header rule matching, scans packet payloads, and implements per-flow queueing. Other functions can be added to the library as extensible modules. An integration tool was developed to enable ...

Keywords: Field Programmable Gate Array (FPGA), Internet, firewall, network intrusion detection and prevention, networks, reconfigurable hardware, tools

20 COGENT: cognitive agent to amplify human perception and cognition



Subrata Das, Dan Grecu

June 2000 **Proceedings of the fourth international conference on Autonomous agents
AGENTS '00**

Publisher: ACM Press

Full text available: pdf(1.06 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: cognitive agent, decision aiding, event generation, information filtering, situation assessment, visualization

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Relevance scale ☐ ☐ ☐ ☐ ☐21 [Haskell on a shared-memory multiprocessor](#)

Tim Harris, Simon Marlow, Simon Peyton Jones

September 2005

Proceedings of the 2005 ACM SIGPLAN workshop on Haskell Haskell '05

Publisher: ACM Press

Full text available: pdf(159.23 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Multi-core processors are coming, and we need ways to program them. The combination of purely-functional programming and explicit, monadic threads, communicating using transactional memory, looks like a particularly promising way to do so. This paper describes a full-scale implementation of shared-memory parallel Haskell, based on the Glasgow Haskell Compiler. Our main technical contribution is a lock-free mechanism for evaluating shared thunks that eliminates the major performance bottleneck in ...

22 [Balancing performance and flexibility with hardware support for network architectures](#)

Ilija Hadžić, Jonathan M. Smith

November 2003

ACM Transactions on Computer Systems (TOCS), Volume 21 Issue 4

Publisher: ACM Press

Full text available: pdf(719.03 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The goals of performance and flexibility are often at odds in the design of network systems. The tension is common enough to justify an architectural solution, rather than a set of context-specific solutions. The Programmable Protocol Processing Pipeline (P4) design uses programmable hardware to selectively accelerate protocol processing functions. A set of field-programmable gate arrays (FPGAs) and an associated library of network processing modules implemented in hardware are augmented with so ...

Keywords: FPGA, P4, computer networking, flexibility, hardware, performance, programmable logic devices, programmable networks, protocol processing

23 [Computer simulation of communications on the space station data management system](#)

J. R. Agre, J. A. Clarke, M. W. Atkinson, I. H. Shahnawaz

December 1987

Proceedings of the 19th conference on Winter simulation WSC '87

Publisher: ACM Press

Full text available: pdf(1.32 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


A discrete event simulation model for performance evaluation of various alternatives in the design of the communication system on the Data Management System (DMS) of the space station has been developed. DMS.SIM, the SIMSCRIPT-based model of DMS consists of two components: (1) The communication architecture model of multiple, interconnected, fiber-optic, local area networks (LANs) where the LAN access protocol is either token-bus or a version of CSMA/CD with deterministic collision ...

24 [Kernel korner: why and how to use netlink socket](#)

Kevin Kaichuan He


February 2005 **Linux Journal**, Volume 2005 Issue 130

Publisher: Specialized Systems Consultants, Inc.

Full text available:  [html\(28.71 KB\)](#)


Additional Information: [full citation](#), [abstract](#), [index terms](#)

25 Modulation scaling for Energy Aware Communication Systems

 Curt Schurgers, Olivier Aberthorne, Mani Srivastava

August 2001 **Proceedings of the 2001 international symposium on Low power electronics and design ISLPED '01**

Publisher: ACM Press

Full text available:  [pdf\(595.31 KB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


Keywords: adaptive modulation, energy awareness, scaling

26 Networking and mobile computing: A packet processor for a learning-based routing protocol

 Taskin Kocak, Hakan Terzioğlu

March 2005 **Proceedings of the 43rd annual Southeast regional conference - Volume 2 ACM-SE 43**

Publisher: ACM Press

Full text available:  [pdf\(742.82 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

As the Internet expands significantly in number of users, servers, routers and other networking products, the IP based network architecture must evolve and change. There are already proposed alternative packet-switched network models that would eliminate some of the problems of IP based networks. Recently proposed Cognitive Packet Networks (CPN) is one of them and it shows similarity with the discrete active networks. CPN uses a neural network model with a reinforcement learning algorithm to fin ...



Keywords: intelligent routing algorithms, network processors, neural networks

27 Technical papers: Grid scheduling and protocols---Benchmarking XML processors for applications in grid web services

 Michael R. Head, Madhusudhan Govindaraju, Robert van Engelen, Wei Zhang

November 2006 **Proceedings of the 2006 ACM/IEEE conference on Supercomputing SC '06**

Publisher: ACM Press


Full text available:  [pdf\(199.06 KB\)](#),  [html\(2.32 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)

Web services based specifications have emerged as the underlying architecture for core grid services and standards, such as WSRF. XML is inextricably inter-twined with Web services based specifications, and as a result the design and implementation of XML processing tools plays a significant role in grid applications. These applications use XML in a wide variety of ways, including workflow specifications, WS-Security based documents, service descriptions in WSDL, and on-the-wire format in SOAP-b ...


Keywords: XML, benchmarking, multi-core

28 Linux in Education: Linux at the University

 Kevin K. Gifford

September 2000 **Linux Journal**

Publisher: Specialized Systems Consultants, Inc.

Full text available:  [html\(33.25 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In outer space, on the ground, and in the classroom: an overview of several exciting real-world applications developed under Linux students and researchers at the University of Colorado in Boulder.

29 Interference evaluation of Bluetooth and IEEE 802.11b systems

N. Golmie, R. E. Van Dyck, A. Soltanian, A. Tonnerre, O. Rébala

May 2003 **Wireless Networks**, Volume 9 Issue 3

Publisher: Kluwer Academic Publishers

Full text available:  pdf(203.73 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The emergence of several radio technologies, such as Bluetooth and IEEE 802.11, operating in the 2.4 GHz unlicensed ISM frequency band, may lead to signal interference and result in significant performance degradation when devices are colocated in the same environment. The main goal of this paper is to evaluate the effect of mutual interference on the performance of Bluetooth and IEEE 802.11b systems. We develop a simulation framework for modeling interference based on detailed MAC and PHY model ...


Keywords: Bluetooth, IEEE 802.11b, WPANs, interference

30 Xunet 2: lessons from an early wide-area ATM testbed

Charles R. Kalmanek, Srinivasan Keshav, William T. Marshall, Samuel P. Morgan, Robert C. Restrick

February 1997 **IEEE/ACM Transactions on Networking (TON)**, Volume 5 Issue 1

Publisher: IEEE Press

Full text available:  pdf(231.69 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: asynchronous transfer mode, available bit rate, constant bit rate, variable bit rate

31 Performance evaluation of ATM/AAL2 as switching technology in 3G mobile access networks

Óscar Mezquita Baeza, Enrico Scarrone

August 2000 **Proceedings of the 3rd ACM international workshop on Wireless mobile multimedia WOWMOM '00**

Publisher: ACM Press

Full text available:  pdf(768.17 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


In this article we focus on the transport and switching part of third generation mobile access networks. At the moment, the second generation of mobile systems is sufficiently extended everywhere and can provide services to all mobile users. The next challenge in the development of digital mobile networks is the integration of data and voice services in a unique platform. It seems to be that Asynchronous Transfer Mode technology (ATM) will be the transport technology candidate to support bo ...

32 Spinach: a liberty-based simulator for programmable network interface architectures

Paul Willmann, Michael Brogioli, Vijay S. Pai

June 2004 **ACM SIGPLAN Notices , Proceedings of the 2004 ACM SIGPLAN/SIGBED conference on Languages, compilers, and tools for embedded systems LCTES '04**, Volume 39 Issue 7

Publisher: ACM Press

Full text available:  pdf(336.99 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper presents Spinach, a new simulator toolset specifically designed to target programmable network interface architectures. Spinach models both system components that are common to all programmable environments (e.g., ALUs, control and data paths, registers, instruction processing) and components that are specific to the embedded systems and network interface environments (e.g., software-controlled scratchpad memory, hardware assists for DMA and medium access control). Spinach is built on ...


Keywords: embedded systems, programmable network interfaces, simulation

33 Wireless home networks: Design and implementation of the HiperLan/2 protocol

E. P. Vasilakopoulou, G. E. Karastergios, G. D. Papadopoulos

April 2003 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 7 Issue 2

Publisher: ACM Press

Full text available:  pdf(1.50 MB)

Additional Information: [full citation](#), [abstract](#), [references](#)

In recent years, wireless communication systems have experienced an enormous

development, leading to the emergence of various wireless networks standards. These standards are characterized by different properties, such as their coverage, data rates, mobility and QoS support. Among them the HiperLan/2 standard is distinguished of its performance, supporting the provision of high-speed integrated services. Its centralized Medium Access Control protocol though is the most critical and complex funct ...

34 Switches & routers: Design of a web switch in a reconfigurable platform



Christoforos Kachris, Stamatis Vassiliadis

December 2006

Proceedings of the 2006 ACM/IEEE symposium on Architecture for networking and communications systems ANCS '06

Publisher: ACM Press

Full text available: pdf(319.85 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The increase of the web traffic has created the need for web switches that are able to balance the traffic to the server farms based on their contents (e.g. layer 7 switching). In this paper we present a web switch implemented in a multi-processor reconfigurable platform augmented with hardware co-processors. The system supports the TCP splicing scheme to accelerate the routing of the packets by forwarding packets at the IP layer after a connection has been spliced. The processors are alleviated ...

Keywords: reconfigurable logic, web switch

35 A flow-based approach to datagram security



Suvo Mittra, Thomas Y. C. Woo

October 1997

ACM SIGCOMM Computer Communication Review , Proceedings of the ACM SIGCOMM '97 conference on Applications, technologies, architectures, and protocols for computer communication SIGCOMM '97, Volume 27 Issue 4

Publisher: ACM Press

Full text available: pdf(2.04 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Datagram services provide a simple, flexible, robust, and scalable communication abstraction; their usefulness has been well demonstrated by the success of IP, UDP, and RPC. Yet, the overwhelming majority of network security protocols that have been proposed are geared towards connection-oriented communications. The few that do cater to datagram communications tend to either rely on long term host-pair keying or impose a session-oriented (i.e., requiring connection setup) semantics. Separately, t ...

36 Formal prototyping in early stages of protocol design



Alwyn Goodloe, Carl A. Gunter, Mark-Oliver Stehr

January 2005

Proceedings of the 2005 workshop on Issues in the theory of security WITS '05

Publisher: ACM Press

Full text available: pdf(530.03 KB)

Additional Information: [full citation](#), [abstract](#), [references](#)

Network protocol design is usually an informal process where debugging is based on successive iterations of a prototype implementation. The feedback provided by a prototype can be indispensable since the requirements are often incomplete at the start. A draw-back of this technique is that errors in protocols can be notoriously difficult to detect by testing alone. Applying formal methods such as theorem proving can greatly increase one's confidence that the protocol is correct. However, formal m ...

37 Wireless LAN optimizations: MiSer: an optimal low-energy transmission strategy for IEEE 802.11a/h



Daji Qiao, Sunghyun Choi, Amit Jain, Kang G. Shin

September 2003

Proceedings of the 9th annual international conference on Mobile computing and networking MobiCom '03

Publisher: ACM Press

Full text available: pdf(248.70 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Reducing the energy consumption by wireless communication devices is perhaps the most important issue in the widely-deployed and exponentially-growing IEEE 802.11 Wireless LANs (WLANs). TPC (Transmit Power Control) and PHY (physical layer) rate adaptation have been recognized as two most effective ways to achieve this goal. The emerging 802.11h standard, which is an extension to the current 802.11 MAC and the high-speed 802.11a PHY, will provide a structured means to support intelligent TPC. In t ...

Keywords: IEEE 802.11a/h, MiSer, PHY rate adaptation, TPC

38 Special session on reconfigurable computing: The happy marriage of architecture and application in next-generation reconfigurable systems

Ingrid Verbaauwhede, Patrick Schaumont

April 2004

Proceedings of the 1st conference on Computing frontiers CF '04

Publisher: ACM Press

Full text available:  pdf(398.28 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

New applications and standards are first conceived only for functional correctness and without concerns for the target architecture. The next challenge is to map them onto an architecture. Embedding such applications in a portable, low-energy context is the art of molding it onto an energy-efficient target architecture combined with an energy efficient execution. With a reconfigurable architecture, this task becomes a two-way process where the architecture adapts to the application and vice-vers ...

Keywords: embedded, real-time systems

39 Towards just-in-time middleware architectures

Charles Zhang, Dapeng Gao, Hans-Arno Jacobsen

March 2005

Proceedings of the 4th international conference on Aspect-oriented software development AOSD '05

Publisher: ACM Press

Full text available:  pdf(290.23 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Middleware becomes increasingly important in building distributed applications. Today, conventional middleware systems are designed, implemented, and packaged prior to their applications. We argue that with this middleware construction paradigm it is often difficult to meet the challenges imposed by application specific customization requirements. We propose to reverse this paradigm by automatically synthesizing middleware structures as the result of reasoning about the distribution needs of the ...

Keywords: aspect oriented middleware, middleware architecture


40 MA-WATM: a new approach towards an adaptive wireless ATM network

Khalidoun Al agha, Houda Labiod

May 1999

Mobile Networks and Applications, Volume 4 Issue 2

Publisher: Kluwer Academic Publishers

Full text available:  pdf(176.03 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In a cellular multimedia network like wireless ATM (WATM), self control seems primordial. Our new approach is based on the application of DAI (distributed artificial intelligence) techniques in order to build a self-adaptive network within random non-uniform traffic conditions. Attempting to achieve a high network capacity in terms of resource allocation and air interface BER (bit error rate), we propose to apply intelligent agent features to enhance the architecture of WATM systems. In fac ...

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